Claims

1. Photo-functional particles characterized by comprising titanium dioxide and a condensed phosphate containing an alkaline earth metal which is present on the surface of the titanium dioxide.

2. Photo-functional particles according to claim 1, wherein the titanium dioxide has a particle size falling within a range of about 0.001 to about 0.1 μm.

3. Photo-functional particles according to claim 1, wherein the titanium dioxide contains at least one crystal form selected from the group consisting of anatase, rutile, and brookite.

4. Photo-functional particles according to claim 1, wherein the condensed phosphate is at least one species selected from the group consisting of a polyphosphate, a metaphosphate, and an ultraphosphate.

5. Photo-functional particles according to claim 1, wherein the condensed phosphate is a pyrophosphate.

6. Photo-functional particles according to claim 1, wherein the alkaline earth metal is at least one species selected from among Mg and Ca.

7 A photo-functional powder comprising photo-functional particles, the particles comprising titanium dioxide and a condensed phosphate containing an alkaline earth metal which is present on the surface of the titanium dioxide.

8. A photo-functional powder according to claim 7,

wherein the titanium dioxide has a primary particle size falling within a range of about 0.001 to about 0.1 μm.

9. A photo-functional powder according to claim 7, wherein the titanium dioxide contains at least one crystal form selected from the group consisting of anatase, rutile, and brookite.

10. A photo-functional powder according to claim 7, wherein the condensed phosphate is at least one species selected from among a polyphosphate, a metaphosphate, and an ultraphosphate.

11. A photo-functional powder according to claim 7, wherein the condensed phosphate is a pyrophosphate.

12. A photo-functional powder according to claim 7, wherein the alkaline earth metal is at least one species selected from among Mg and Ca.

13. An aqueous slurry comprising photo-functional particles as recited in any one of claims 1 through 6.

14. An aqueous slurry according to claim 13, which has a pH of about 5 to about 9.

15. An aqueous slurry according to claim 13, wherein, when the slurry contains the photo-functional particles in an amount of 10 mass%, the slurry has a transmittance of at least about 20% at a wavelength of 550 nm and an optical length of 2 mm.

16. A coating agent comprising an aqueous slurry as recited in any one of claims 13 through 15.

17. An organic polymer composition comprising a photo-

functional powder as recited in any one of claims 7 through 12.

18. An organic polymer composition according to claim 17, which contains the photo-functional powder in an amount of about 0.01 to about 80 mass% on the basis of the entire mass of the composition.

19. An organic polymer composition according to claim 17, wherein the organic polymer of the composition is at least one species selected from the group consisting of a synthetic thermoplastic resin, a synthetic thermosetting resin, and a natural resin.

20. A coating material comprising an organic polymer composition as recited in any one of claims 17 through 19.

21. A compound comprising an organic polymer composition as recited in any one of claims 17 through 19.

22. A masterbatch for a formed article selected from among fiber, film, and plastic formed articles, comprising an organic polymer composition as recited in any one of claims 17 through 19 containing the photo-functional powder.

23. A photo-functional formed article which is formed from an organic polymer composition as recited in any one of claims 17 through 19 containing the photo-functional powder.

24. A photo-functional formed article according to claim 23, which is selected from among fiber, film, and plastic formed articles.

25. A photo-functional structure comprising, on its surface, photo-functional particles as recited in any one of

claims 1 through 6.

26. A hydrophilic structure comprising a surface layer containing photo-functional particles as recited in any one of claims 1 through 6, wherein the surface of the layer exhibits hydrophilicity.

27. A structure according to claim 25 or 26, which is at least one member selected from the group consisting of building materials, machinery, vehicles, glass products, electric appliances, agricultural materials, electronic apparatus, tools, tableware, bath products, toiletry products, furniture, clothing, cloth products, fibers, leather products, paper products, sporting goods, futon, containers, eyeglasses, signboards, piping, wiring, brackets, sanitary materials, and automobile parts.